

SEQUENCE LISTING

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Mak, Ho Yi

<120> Methods and Compositions Relating to Lipid Accumulation

<130> 00786/440007

<140> US 10/556,649  
<141> 2005-11-10

<150> PCT/US2004/019186  
<151> 2004-06-16

<150> US 60/570,374  
<151> 2004-05-12

<150> US 60/550,257  
<151> 2004-03-05

<150> US 60/483,199  
<151> 2003-06-27

<150> US 60/478,878  
<151> 2003-06-16

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<170> PatentIn version 3.3

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acctacgtcg caagaatgaa ac

22

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<213> ARTIFICIAL SEQUENCE

<220>  
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ttaacaagga ccatggtcca g

21

<210> 3  
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<212> DNA  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> synthetic

<400> 3  
gaaaattccg ctaaacttaa ac

22

<210> 4  
<211> 175  
<212> PRT  
<213> Caenorhabditis elegans

<400> 4

Ser Phe Arg Ser Ser Leu Ser Ser Val Thr Ala Pro Glu Leu Ala Ser  
1 5 10 15

Val Ala Ile Lys Ala Ala Leu Glu Arg Gly Ala Val Lys Pro Ser Ser  
20 25 30

Ile Gln Glu Val Phe Leu Gly Gln Val Cys Gln Ala Asn Ala Gly Gln  
35 40 45

Ala Pro Ala Arg Gln Ala Ala Leu Gly Ala Gly Leu Asp Leu Ser Val  
50 55 60

Ala Val Thr Thr Val Asn Lys Val Cys Ser Ser Gly Leu Lys Ala Ile  
65 70 75 80

Ile Leu Ala Ala Gln Gln Ile Gln Thr Gly His Gln Asp Phe Ala Ile  
85 90 95

Gly Gly Gly Met Glu Ser Met Ser Gln Val Pro Phe Tyr Val Gln Arg  
100 105 110

Gly Glu Ile Pro Tyr Gly Gly Phe Gln Val Ile Asp Gly Ile Val Lys  
115 120 125

Asp Gly Leu Thr Asp Ala Tyr Asp Lys Val His Met Gly Asn Cys Gly  
130 135 140

Glu Lys Thr Ser Lys Glu Met Gly Ile Thr Arg Lys Asp Gln Asp Glu  
145 150 155 160

Tyr Ala Ile Asn Ser Tyr Lys Lys Ser Ala Lys Ala Val Glu Asn  
165 170 175

<210> 5  
<211> 173  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 5

Gly Phe Lys Gly Ala Phe Lys Asp Val Asn Thr Asp Tyr Leu Leu Tyr  
1 5 10 15

Asn Phe Leu Asn Glu Phe Ile Gly Arg Phe Pro Glu Pro Leu Arg Ala  
20 25 30

Asp Leu Asn Leu Ile Glu Glu Val Ala Cys Gly Asn Val Leu Asn Val  
35 40 45

Gly Ala Gly Ala Thr Glu His Arg Ala Ala Cys Leu Ala Ser Gly Ile  
50 55 60

Pro Tyr Ser Thr Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly  
65 70 75 80

Leu Thr Ala Val Asn Asp Ile Ala Asn Lys Ile Lys Val Gly Gln Ile  
85 90 95

Asp Ile Gly Leu Ala Leu Gly Val Glu Ser Met Thr Asn Asn Tyr Lys  
100 105 110

Asn Val Asn Pro Leu Gly Met Ile Ser Ser Glu Glu Leu Gln Lys Asn  
115 120 125

Arg Glu Ala Lys Lys Cys Leu Ile Pro Met Gly Ile Thr Asn Glu Asn  
130 135 140

Val Ala Ala Asn Phe Lys Ile Ser Arg Lys Asp Gln Asp Glu Phe Ala  
145 150 155 160

Ala Asn Ser Tyr Gln Lys Ala Tyr Lys Ala Lys Asn Glu  
165 170

<210> 6  
<211> 167

<212> PRT

<213> Yarrowia lipolytica

<400> 6

Gly Gly Lys Gly Leu Phe Lys Asp Thr Ser Ser Ser Glu Leu Leu Ala  
1 5 10 15

Ser Leu Leu Glu Gly Leu Val Lys Glu Ser Lys Ile Asp Pro Lys Leu  
20 25 30

Ile Gly Asp Val Val Cys Gly Asn Val Leu Ala Ala Gly Ala Gly Ala  
35 40 45

Thr Glu His Arg Ala Ala Cys Leu Val Ala Gly Ile Pro Glu Thr Val  
50 55 60

Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly Leu Met Ala Val  
65 70 75 80

Asn Asp Val Ala Asn Lys Ile Arg Ala Gly Gln Ile Asp Ile Gly Ile  
85 90 95

Gly Cys Gly Val Glu Ser Met Ser Asn Gln Tyr Gly Pro Asn Ser Val  
100 105 110

Thr Pro Phe Ser Asn Lys Phe Gln Asn Asn Glu Ala Lys Lys Cys  
115 120 125

Leu Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Ala Lys Tyr Asn  
130 135 140

Val Ser Arg Lys Ala Gln Asp Ala Phe Ala Ala Lys Ser Tyr Glu Lys  
145 150 155 160

Ala Ala Ala Ala Gln Ala Ala  
165

<210> 7

<211> 169

<212> PRT

<213> Arabidopsis thaliana

<400> 7

Ala Arg Arg Gly Gly Phe Lys Asp Thr Leu Pro Asp Asp Leu Leu Ala

1

5

10

15

Ser Val Leu Lys Ala Val Val Glu Arg Thr Ser Leu Asp Pro Ser Glu  
20 25 30

Val Gly Asp Ile Val Val Gly Thr Val Ile Ala Pro Gly Ser Gln Arg  
35 40 45

Ala Met Glu Cys Arg Val Ala Ala Tyr Phe Ala Gly Phe Pro Asp Ser  
50 55 60

Val Pro Val Arg Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala  
65 70 75 80

Val Ala Asp Val Ala Ala Ser Ile Arg Ala Gly Tyr Tyr Asp Ile Gly  
85 90 95

Ile Gly Ala Gly Val Glu Ser Met Ser Thr Asp His Ile Pro Gly Gly  
100 105 110

Gly Phe His Gly Ser Asn Pro Arg Ala Gln Asp Phe Pro Lys Ala Arg  
115 120 125

Asp Cys Leu Leu Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg  
130 135 140

Phe Gly Val Thr Arg Glu Glu Gln Asp Met Ala Ala Val Glu Ser His  
145 150 155 160

Lys Arg Ala Ala Ala Ala Ile Ala Ser  
165

<210> 8  
<211> 175  
<212> PRT  
<213> Drosophila melanogaster

<400> 8

Ser Phe Gln Ser Gln Leu Ala Pro Leu Thr Ala Thr Gln Leu Gly Ala  
1 5 10 15

Arg Ala Ile Glu Ala Ala Ile Glu Lys Ala Gly Ile Ala Lys Thr Asp  
20 25 30

Val Gln Glu Val Ile Met Gly Asn Val Val Ser Ala Gly Leu Gly Gln  
35 40 45

Ala Pro Ala Arg Gln Ala Ala Ile Phe Ala Gly Leu Pro Thr Asn Val  
50 55 60

Cys Cys Thr Thr Val Asn Lys Val Cys Ser Ser Gly Met Lys Ala Val  
65 70 75 80

Met Leu Gly Ala Gln Ser Leu Met Leu Gly Tyr Ala Asp Val Val Val  
85 90 95

Ala Gly Gly Met Glu Ser Met Ser Asn Val Pro Tyr Tyr Leu Lys Arg  
100 105 110

Gly Ala Thr Pro Tyr Gly Gly Val Asn Leu Thr Asp Gly Ile Val Phe  
115 120 125

Asp Gly Leu Trp Asp Val Tyr Asn Lys Phe His Met Gly Asn Cys Ala  
130 135 140

Glu Asn Thr Ala Lys Lys Leu Glu Ile Thr Arg Gln Gln Gln Asp Asp  
145 150 155 160

Phe Ala Ile Glu Ser Tyr Lys Arg Ser Ala Ala Ala Trp Ala Asn  
165 170 175

<210> 9  
<211> 166  
<212> PRT  
<213> Rattus norvegicus

<400> 9

Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu Leu Ser  
1 5 10 15

Ala Val Leu Thr Ala Val Leu Gln Asp Val Lys Leu Lys Pro Glu Cys  
20 25 30

Leu Gly Asp Ile Ser Val Gly Asn Val Leu Glu Pro Gly Ala Gly Ala  
35 40 45

Val Met Ala Arg Ile Ala Gln Phe Leu Ser Gly Ile Pro Glu Thr Val

50

55

60

Pro Leu Ser Ala Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val  
65 70 75 80

Ala Asn Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met  
85 90 95

Ala Cys Gly Val Glu Ser Met Ser Leu Ser Asn Arg Gly Asn Pro Gly  
100 105 110

Asn Ile Ser Ser Arg Leu Leu Glu Ser Asp Lys Ala Arg Asp Cys Leu  
115 120 125

Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile  
130 135 140

Ser Arg Gln Lys Gln Asp Ala Phe Ala Leu Ala Ser Gln Gln Lys Ala  
145 150 155 160

Ala Ser Ala Gln Ser Lys  
165

<210> 10

<211> 166

<212> PRT

<213> Mus musculus

<400> 10

Ala Ser Arg Gly Gly Phe Lys Asn Thr Thr Pro Asp Glu Leu Leu Ser  
1 5 10 15

Ala Val Leu Thr Ala Val Leu Gln Asp Val Arg Leu Lys Pro Glu Gln  
20 25 30

Leu Gly Asp Ile Ser Val Gly Asn Val Leu Glu Pro Gly Ala Gly Ala  
35 40 45

Val Met Ala Arg Ile Ala Gln Phe Leu Ser Gly Ile Pro Glu Thr Val  
50 55 60

Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val  
65 70 75 80

Ala Asn Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met  
85 90 95

Ala Cys Gly Val Glu Ser Met Ser Leu Ser Gly Met Gly Asn Pro Gly  
100 105 110

Asn Ile Ser Ser Arg Leu Leu Glu Ser Glu Lys Ala Arg Asp Cys Leu  
115 120 125

Thr Pro Met Gly Met Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile  
130 135 140

Ser Arg Gln Lys Gln Asp Asp Phe Ala Leu Ala Ser Gln Gln Lys Ala  
145 150 155 160

Ala Ser Ala Gln Ser Arg  
165

<210> 11  
<211> 166  
<212> PRT  
<213> Homo sapiens

<400> 11

Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu Leu Ser  
1 5 10 15

Ala Val Met Thr Ala Val Leu Lys Asp Val Asn Leu Arg Pro Glu Gln  
20 25 30

Leu Gly Asp Ile Cys Val Gly Asn Val Leu Gln Pro Gly Ala Gly Ala  
35 40 45

Ile Met Ala Arg Ile Ala Gln Phe Leu Ser Asp Ile Pro Glu Thr Val  
50 55 60

Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln Ala Val  
65 70 75 80

Ala Ser Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile Gly Met  
85 90 95

Ala Cys Gly Val Glu Ser Met Ser Leu Ala Asp Arg Gly Asn Pro Gly

100

105

110

Asn Ile Thr Ser Arg Leu Met Glu Lys Glu Lys Ala Arg Asp Cys Leu  
115 120 125

Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe Gly Ile  
130 135 140

Ser Arg Glu Lys Gln Asp Thr Phe Ala Leu Ala Ser Gln Gln Lys Ala  
145 150 155 160

Ala Arg Ala Gln Ser Lys  
165

<210> 12  
<211> 145  
<212> PRT  
<213> Caenorhabditis elegans

<400> 12

Ala Ser Thr Leu Asn Asp Gly Ala Ala Ala Val Ile Val Ala Ser Gln  
1 5 10 15

Glu Ala Val Ser Glu Gln Ser Leu Lys Pro Leu Ala Arg Ile Leu Ala  
20 25 30

Tyr Gly Asp Ala Ala Thr His Pro Leu Asp Phe Ala Val Ala Pro Thr  
35 40 45

Leu Met Phe Pro Lys Ile Leu Glu Arg Ala Gly Val Lys Gln Ser Asp  
50 55 60

Val Ala Gln Trp Glu Val Asn Glu Ala Phe Ser Cys Val Pro Leu Ala  
65 70 75 80

Phe Ile Lys Lys Leu Gly Val Asp Pro Ser Leu Val Asn Pro His Gly  
85 90 95

Gly Ala Val Ser Ile Gly His Pro Ile Gly Met Ser Gly Ala Arg Leu  
100 105 110

Ile Thr His Leu Val His Thr Leu Lys Ser Gly Gln Ile Gly Val Ala  
115 120 125

Ala Ile Cys Asn Gly Gly Ser Ser Gly Met Val Ile Gln Lys  
130 135 140

Leu  
145

<210> 13  
<211> 145  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 13

Ala Ser Gln Val Ser Asp Gly Val Ala Gly Val Leu Leu Ala Arg Arg  
1 5 10 15

Ser Val Ala Asn Gln Leu Asn Leu Pro Val Leu Gly Arg Tyr Ile Asp  
20 25 30

Phe Gln Thr Val Gly Val Pro Pro Glu Ile Met Gly Val Gly Pro Ala  
35 40 45

Tyr Ala Ile Pro Lys Val Leu Glu Ala Thr Gly Leu Gln Val Gln Asp  
50 55 60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ala Gln Ala Leu Tyr  
65 70 75 80

Cys Ile His Lys Leu Gly Ile Asp Leu Asn Lys Val Asn Pro Arg Gly  
85 90 95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln  
100 105 110

Val Ala Thr Ile Leu Arg Glu Leu Lys Lys Asp Gln Ile Gly Val Val  
115 120 125

Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Ile Phe Ile Lys  
130 135 140

Glu  
145

<210> 14

<211> 147  
<212> PRT  
<213> Yarrowia lipolytica

<400> 14

Ala Ser Gln Ile Ser Asp Gly Ala Gly Ala Val Leu Leu Met Arg Arg  
1 5 10 15

Ser Val Ala Glu Lys Leu Gly Gln Pro Ile Leu Ala Lys Phe Val His  
20 25 30

Cys Lys Thr Val Gly Val Pro Pro Glu Leu Met Gly Ile Gly Pro Ala  
35 40 45

Tyr Ala Ile Pro Ala Val Leu Glu Asp Leu Gly Leu Thr Val Asn Asp  
50 55 60

Val Asp Val Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Leu Phe  
65 70 75 80

Ser Ile Gln His Cys Gly Ile Asp Glu Ser Lys Val Asn Pro Arg Gly  
85 90 95

Gly Ala Ile Ala Ile Gly His Pro Leu Gly Ala Thr Gly Ala Arg Gln  
100 105 110

Phe Ala Thr Leu Leu Ser Glu Leu Lys Glu Ser Gly Lys Lys Val Gly  
115 120 125

Val Thr Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ser Leu Val  
130 135 140

Val Ala Glu  
145

<210> 15  
<211> 166  
<212> PRT  
<213> Arabidopsis thaliana

<400> 15

Ala Ser Gln Ile Ser Asp Gly Ala Gly Ala Val Leu Leu Met Lys Arg  
1 5 10 15

Ser Leu Ala Met Lys Lys Gly Leu Pro Ile Leu Gly Val Phe Arg Ser  
20 25 30

Phe Ala Val Thr Gly Val Glu Pro Ser Val Met Gly Ile Gly Pro Ala  
35 40 45

Val Ala Ile Pro Ala Ala Thr Lys Leu Ala Gly Leu Asn Val Ser Asp  
50 55 60

Ile Asp Leu Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Tyr Val Tyr  
65 70 75 80

Ser Cys Lys Lys Leu Glu Leu Asp Met Glu Lys Val Asn Val Asn Gly  
85 90 95

Gly Ala Ile Ala Ile Gly His Pro Leu Gly Ala Thr Gly Ala Arg Cys  
100 105 110

Val Ala Thr Leu Leu His Glu Met Lys Arg Arg Gly Lys Asp Cys Arg  
115 120 125

Phe Gly Val Ile Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala  
130 135 140

Val Phe Glu Arg Gly Asp Ser Val Asp Asn Leu Ser Asn Ala Arg Val  
145 150 155 160

Ala Asn Gly Asp Ser His  
165

<210> 16  
<211> 145  
<212> PRT  
<213> Drosophila melanogaster

<400> 16

Ala Ser Thr Leu Asn Asp Gly Gly Ala Ala Val Val Leu Met Ser Ala  
1 5 10 15

Glu Ala Ala Gln Lys Ala Gly Ile Lys Pro Leu Ala Arg Ile Val Ala  
20 25 30

Phe Gln Asp Ala Glu Thr Asp Pro Ile Asp Phe Pro Ile Ala Pro Ala  
35 40 45

Leu Ala Ile Pro Lys Leu Leu Lys Arg Ala Gly Val Arg Lys Glu Asp  
50 55 60

Val Ala Met Trp Glu Val Asn Glu Ala Phe Ser Leu Val Val Leu Ala  
65 70 75 80

Asn Ile Lys Lys Leu Asp Val Asp Pro Ala Lys Val Asn Val His Gly  
85 90 95

Gly Ala Val Ser Ile Gly His Pro Ile Gly Met Ser Gly Ala Arg Leu  
100 105 110

Val Ala His Leu Ser His Ser Leu Lys Lys Gly Glu Leu Gly Cys Ala  
115 120 125

Ser Ile Cys Asn Gly Gly Gly Ala Ser Ser Ile Leu Ile Glu Lys  
130 135 140

Leu  
145

<210> 17  
<211> 150  
<212> PRT  
<213> Rattus norvegicus

<400> 17

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Val Leu Leu Ala Arg Arg  
1 5 10 15

Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser  
20 25 30

Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly Pro Ala  
35 40 45

Tyr Ala Ile Pro Ala Ala Leu Gln Lys Ala Gly Leu Thr Val Asn Asp  
50 55 60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Leu Tyr  
65 70 75 80

Cys Val Glu Lys Leu Gly Ile Pro Ala Glu Lys Val Asn Pro Leu Gly  
85 90 95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln  
100 105 110

Val Val Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Thr Arg Ala Tyr  
115 120 125

Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val  
130 135 140

Phe Glu Tyr Pro Gly Asn  
145 150

<210> 18  
<211> 150  
<212> PRT  
<213> Mus musculus

<400> 18

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Val Leu Leu Ala Arg Arg  
1 5 10 15

Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser  
20 25 30

Tyr Ala Val Val Gly Val Pro Pro Asp Val Met Gly Ile Gly Pro Ala  
35 40 45

Tyr Ala Ile Pro Ala Ala Leu Gln Lys Ala Gly Leu Thr Val Asn Asp  
50 55 60

Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Val Tyr  
65 70 75 80

Cys Val Glu Lys Leu Gly Ile Pro Ala Glu Lys Val Asn Pro Leu Gly  
85 90 95

Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln  
100 105 110

Val Val Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Arg Arg Ala Tyr  
115 120 125

Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val  
130 135 140

Phe Glu Tyr Pro Gly Asn  
145 150

<210> 19  
<211> 150  
<212> PRT  
<213> Homo sapiens

<400> 19

Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Ile Leu Leu Ala Arg Arg  
1 5 10 15

Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu Arg Ser  
20 25 30

Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly Pro Ala  
35 40 45

Tyr Ala Ile Pro Val Ala Leu Gln Lys Ala Gly Leu Thr Val Ser Asp  
50 55 60

Val Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala Ala Tyr  
65 70 75 80

Cys Val Glu Lys Leu Arg Leu Pro Pro Glu Lys Val Asn Pro Leu Gly  
85 90 95

Gly Ala Val Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln  
100 105 110

Val Ile Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Lys Arg Ala Tyr  
115 120 125

Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Val  
130 135 140

Phe Glu Tyr Pro Gly Asn  
145 150

<210> 20  
<211> 407  
<212> PRT  
<213> Caenorhabditis elegans

<400> 20

Met Leu Ser Ser Ser Gly His Ala Ile Arg Arg Gly Ile Thr Thr Ser  
1 5 10 15

Ala Ala Leu Ser Asn Lys His Ala Phe Ile Val Gly Ala Ala Arg Thr  
20 25 30

Pro Ile Gly Ser Phe Arg Ser Ser Leu Ser Ser Val Thr Ala Pro Glu  
35 40 45

Leu Ala Ser Val Ala Ile Lys Ala Ala Leu Glu Arg Gly Ala Val Lys  
50 55 60

Pro Ser Ser Ile Gln Glu Val Phe Leu Gly Gln Val Cys Gln Ala Asn  
65 70 75 80

Ala Gly Gln Ala Pro Ala Arg Gln Ala Ala Leu Gly Ala Gly Leu Asp  
85 90 95

Leu Ser Val Ala Val Thr Thr Val Asn Lys Val Cys Ser Ser Gly Leu  
100 105 110

Lys Ala Ile Ile Leu Ala Ala Gln Gln Ile Gln Thr Gly His Gln Asp  
115 120 125

Phe Ala Ile Gly Gly Met Glu Ser Met Ser Gln Val Pro Phe Tyr  
130 135 140

Val Gln Arg Gly Glu Ile Pro Tyr Gly Gly Phe Gln Val Ile Asp Gly  
145 150 155 160

Ile Val Lys Asp Gly Leu Thr Asp Ala Tyr Asp Lys Val His Met Gly  
165 170 175

Asn Cys Gly Glu Lys Thr Ser Lys Glu Met Gly Ile Thr Arg Lys Asp  
180 185 190

Gln Asp Glu Tyr Ala Ile Asn Ser Tyr Lys Lys Ser Ala Lys Ala Trp  
195 200 205

Glu Asn Gly Asn Ile Gly Pro Glu Val Val Pro Val Asn Val Lys Ser  
210 215 220

Lys Lys Gly Val Thr Ile Val Asp Lys Asp Glu Glu Phe Thr Lys Val  
225 230 235 240

Asn Phe Asp Lys Phe Thr Ser Leu Arg Thr Val Phe Gln Lys Asp Gly  
245 250 255

Thr Ile Thr Ala Ala Asn Ala Ser Thr Leu Asn Asp Gly Ala Ala Ala  
260 265 270

Val Ile Val Ala Ser Gln Glu Ala Val Ser Glu Gln Ser Leu Lys Pro  
275 280 285

Leu Ala Arg Ile Leu Ala Tyr Gly Asp Ala Ala Thr His Pro Leu Asp  
290 295 300

Phe Ala Val Ala Pro Thr Leu Met Phe Pro Lys Ile Leu Glu Arg Ala  
305 310 315 320

Gly Val Lys Gln Ser Asp Val Ala Gln Trp Glu Val Asn Glu Ala Phe  
325 330 335

Ser Cys Val Pro Leu Ala Phe Ile Lys Lys Leu Gly Val Asp Pro Ser  
340 345 350

Leu Val Asn Pro His Gly Gly Ala Val Ser Ile Gly His Pro Ile Gly  
355 360 365

Met Ser Gly Ala Arg Leu Ile Thr His Leu Val His Thr Leu Lys Ser  
370 375 380

Gly Gln Ile Gly Val Ala Ala Ile Cys Asn Gly Gly Gly Ser Ser  
385 390 395 400

Gly Met Val Ile Gln Lys Leu  
405

<210> 21  
<211> 417  
<212> PRT

<213> Saccharomyces cerevisiae

<400> 21

Met Ser Gln Arg Leu Gln Ser Ile Lys Asp His Leu Val Glu Ser Ala  
1 5 10 15

Met Gly Lys Gly Glu Ser Lys Arg Lys Asn Ser Leu Leu Glu Lys Arg  
20 25 30

Pro Glu Asp Val Val Ile Val Ala Ala Asn Arg Ser Ala Ile Gly Lys  
35 40 45

Gly Phe Lys Gly Ala Phe Lys Asp Val Asn Thr Asp Tyr Leu Leu Tyr  
50 55 60

Asn Phe Leu Asn Glu Phe Ile Gly Arg Phe Pro Glu Pro Leu Arg Ala  
65 70 75 80

Asp Leu Asn Leu Ile Glu Glu Val Ala Cys Gly Asn Val Leu Asn Val  
85 90 95

Gly Ala Gly Ala Thr Glu His Arg Ala Ala Cys Leu Ala Ser Gly Ile  
100 105 110

Pro Tyr Ser Thr Pro Phe Val Ala Leu Asn Arg Gln Cys Ser Ser Gly  
115 120 125

Leu Thr Ala Val Asn Asp Ile Ala Asn Lys Ile Lys Val Gly Gln Ile  
130 135 140

Asp Ile Gly Leu Ala Leu Gly Val Glu Ser Met Thr Asn Asn Tyr Lys  
145 150 155 160

Asn Val Asn Pro Leu Gly Met Ile Ser Ser Glu Glu Leu Gln Lys Asn  
165 170 175

Arg Glu Ala Lys Lys Cys Leu Ile Pro Met Gly Ile Thr Asn Glu Asn  
180 185 190

Val Ala Ala Asn Phe Lys Ile Ser Arg Lys Asp Gln Asp Glu Phe Ala  
195 200 205

Ala Asn Ser Tyr Gln Lys Ala Tyr Lys Ala Lys Asn Glu Gly Leu Phe

210	215	220
Glu Asp Glu Ile Leu Pro Ile Lys Leu Pro Asp Gly Ser Ile Cys Gln		
225	230	235
Ser Asp Glu Gly Pro Arg Pro Asn Val Thr Ala Glu Ser Leu Ser Ser		
245	250	255
Ile Arg Pro Ala Phe Ile Lys Asp Arg Gly Thr Thr Thr Ala Gly Asn		
260	265	270
Ala Ser Gln Val Ser Asp Gly Val Ala Gly Val Leu Leu Ala Arg Arg		
275	280	285
Ser Val Ala Asn Gln Leu Asn Leu Pro Val Leu Gly Arg Tyr Ile Asp		
290	295	300
Phe Gln Thr Val Gly Val Pro Pro Glu Ile Met Gly Val Gly Pro Ala		
305	310	315
320		
Tyr Ala Ile Pro Lys Val Leu Glu Ala Thr Gly Leu Gln Val Gln Asp		
325	330	335
Ile Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ala Gln Ala Leu Tyr		
340	345	350
Cys Ile His Lys Leu Gly Ile Asp Leu Asn Lys Val Asn Pro Arg Gly		
355	360	365
Gly Ala Ile Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala Arg Gln		
370	375	380
Val Ala Thr Ile Leu Arg Glu Leu Lys Lys Asp Gln Ile Gly Val Val		
385	390	395
400		
Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala Ala Ile Phe Ile Lys		
405	410	415
Glu		

<210> 22  
<211> 424

<212> PRT  
<213> Homo sapiens

<400> 22

Met Gln Arg Leu Gln Val Val Leu Gly His Leu Arg Gly Pro Ala Asp  
1 5 10 15

Ser Gly Trp Met Pro Gln Ala Ala Pro Cys Leu Ser Gly Ala Pro Gln  
20 25 30

Ala Ser Ala Ala Asp Val Val Val His Gly Arg Arg Thr Ala Ile  
35 40 45

Cys Arg Ala Gly Arg Gly Gly Phe Lys Asp Thr Thr Pro Asp Glu Leu  
50 55 60

Leu Ser Ala Val Met Thr Ala Val Leu Lys Asp Val Asn Leu Arg Pro  
65 70 75 80

Glu Gln Leu Gly Asp Ile Cys Val Gly Asn Val Leu Gln Pro Gly Ala  
85 90 95

Gly Ala Ile Met Ala Arg Ile Ala Gln Phe Leu Ser Asp Ile Pro Glu  
100 105 110

Thr Val Pro Leu Ser Thr Val Asn Arg Gln Cys Ser Ser Gly Leu Gln  
115 120 125

Ala Val Ala Ser Ile Ala Gly Gly Ile Arg Asn Gly Ser Tyr Asp Ile  
130 135 140

Gly Met Ala Cys Gly Val Glu Ser Met Ser Leu Ala Asp Arg Gly Asn  
145 150 155 160

Pro Gly Asn Ile Thr Ser Arg Leu Met Glu Lys Glu Lys Ala Arg Asp  
165 170 175

Cys Leu Ile Pro Met Gly Ile Thr Ser Glu Asn Val Ala Glu Arg Phe  
180 185 190

Gly Ile Ser Arg Glu Lys Gln Asp Thr Phe Ala Leu Ala Ser Gln Gln  
195 200 205

Lys Ala Ala Arg Ala Gln Ser Lys Gly Cys Phe Gln Ala Glu Ile Val  
210 215 220

Pro Val Thr Thr Thr Val His Asp Asp Lys Gly Thr Lys Arg Ser Ile  
225 230 235 240

Thr Val Thr Gln Asp Glu Gly Ile Arg Pro Ser Thr Thr Met Glu Gly  
245 250 255

Leu Ala Lys Leu Lys Pro Ala Phe Lys Lys Asp Gly Ser Thr Thr Ala  
260 265 270

Gly Asn Ser Ser Gln Val Ser Asp Gly Ala Ala Ala Ile Leu Leu Ala  
275 280 285

Arg Arg Ser Lys Ala Glu Glu Leu Gly Leu Pro Ile Leu Gly Val Leu  
290 295 300

Arg Ser Tyr Ala Val Val Gly Val Pro Pro Asp Ile Met Gly Ile Gly  
305 310 315 320

Pro Ala Tyr Ala Ile Pro Val Ala Leu Gln Lys Ala Gly Leu Thr Val  
325 330 335

Ser Asp Val Asp Ile Phe Glu Ile Asn Glu Ala Phe Ala Ser Gln Ala  
340 345 350

Ala Tyr Cys Val Glu Lys Leu Arg Leu Pro Pro Glu Lys Val Asn Pro  
355 360 365

Leu Gly Gly Ala Val Ala Leu Gly His Pro Leu Gly Cys Thr Gly Ala  
370 375 380

Arg Gln Val Ile Thr Leu Leu Asn Glu Leu Lys Arg Arg Gly Lys Arg  
385 390 395 400

Ala Tyr Gly Val Val Ser Met Cys Ile Gly Thr Gly Met Gly Ala Ala  
405 410 415

Ala Val Phe Glu Tyr Pro Gly Asn  
420

<211> 593  
<212> PRT  
<213> Homo sapiens

<400> 23

Met Ala Ala Ala Ser Ser Ser Asp Ser Asp Ala Cys Gly Ala Glu Ser  
1 5 10 15

Asn Glu Ala Asn Ser Lys Trp Leu Asp Ala His Tyr Asp Pro Met Ala  
20 25 30

Asn Ile His Thr Phe Ser Ala Cys Leu Ala Leu Ala Asp Leu His Gly  
35 40 45

Asp Gly Glu Tyr Lys Leu Val Val Gly Asp Leu Gly Pro Gly Gly Gln  
50 55 60

Gln Pro Arg Leu Lys Val Leu Lys Gly Pro Leu Val Met Thr Glu Ser  
65 70 75 80

Pro Leu Pro Ala Leu Pro Ala Ala Ala Thr Phe Leu Met Glu Gln  
85 90 95

His Glu Pro Arg Thr Pro Ala Leu Ala Leu Ala Ser Gly Pro Cys Val  
100 105 110

Tyr Val Tyr Lys Asn Leu Arg Pro Tyr Phe Lys Phe Ser Leu Pro Gln  
115 120 125

Leu Pro Pro Asn Pro Leu Glu Gln Asp Leu Trp Asn Gln Ala Lys Glu  
130 135 140

Asp Arg Ile Asp Pro Leu Thr Leu Lys Glu Met Leu Glu Ser Ile Arg  
145 150 155 160

Glu Thr Ala Glu Glu Pro Leu Ser Ile Gln Ser Leu Arg Phe Leu Gln  
165 170 175

Leu Glu Leu Ser Glu Met Glu Ala Phe Val Asn Gln His Lys Ser Asn  
180 185 190

Ser Ile Lys Arg Gln Thr Val Ile Thr Thr Met Thr Thr Leu Lys Lys  
195 200 205

Asn Leu Ala Asp Glu Asp Ala Val Ser Cys Leu Val Leu Gly Thr Glu  
210 215 220

Asn Lys Glu Leu Leu Val Leu Asp Pro Glu Ala Phe Thr Ile Leu Ala  
225 230 235 240

Lys Met Ser Leu Pro Ser Val Pro Val Phe Leu Glu Val Ser Gly Gln  
245 250 255

Phe Asp Val Glu Phe Arg Leu Ala Ala Cys Arg Asn Gly Asn Ile  
260 265 270

Tyr Ile Leu Arg Arg Asp Ser Lys His Pro Lys Tyr Cys Ile Glu Leu  
275 280 285

Ser Ala Gln Pro Val Gly Leu Ile Arg Val His Lys Val Leu Val Val  
290 295 300

Gly Ser Thr Gln Asp Ser Leu His Gly Phe Thr His Lys Gly Lys Lys  
305 310 315 320

Leu Trp Thr Val Gln Met Pro Ala Ala Ile Leu Thr Met Asn Leu Leu  
325 330 335

Glu Gln His Ser Arg Gly Leu Gln Ala Val Met Ala Gly Leu Ala Asn  
340 345 350

Gly Glu Val Arg Ile Tyr Arg Asp Lys Ala Leu Leu Asn Val Ile His  
355 360 365

Thr Pro Asp Ala Val Thr Ser Leu Cys Phe Gly Arg Tyr Gly Arg Glu  
370 375 380

Asp Asn Thr Leu Ile Met Thr Thr Arg Gly Gly Leu Ile Ile Lys  
385 390 395 400

Ile Leu Lys Arg Thr Ala Val Phe Val Glu Gly Gly Ser Glu Val Gly  
405 410 415

Pro Pro Pro Ala Gln Ala Met Lys Leu Asn Val Pro Arg Lys Thr Arg  
420 425 430

Leu Tyr Val Asp Gln Thr Leu Arg Glu Arg Glu Ala Gly Thr Ala Met  
435 440 445

His Arg Ala Phe Gln Thr Asp Leu Tyr Leu Leu Arg Leu Arg Ala Ala  
450 455 460

Arg Ala Tyr Leu Gln Ala Leu Glu Ser Ser Leu Ser Pro Leu Ser Thr  
465 470 475 480

Thr Ala Arg Glu Pro Leu Lys Leu His Ala Val Val Gln Gly Leu Gly  
485 490 495

Pro Thr Phe Lys Leu Thr Leu His Leu Gln Asn Thr Ser Thr Thr Arg  
500 505 510

Pro Val Leu Gly Leu Leu Val Cys Phe Leu Tyr Asn Glu Ala Leu Tyr  
515 520 525

Ser Leu Pro Arg Ala Phe Phe Lys Val Pro Leu Leu Val Pro Gly Leu  
530 535 540

Asn Tyr Pro Leu Glu Thr Phe Val Glu Ser Leu Ser Asn Lys Gly Ile  
545 550 555 560

Ser Asp Ile Ile Lys Val Leu Val Leu Arg Glu Gly Gln Ser Ala Pro  
565 570 575

Leu Leu Ser Ala His Val Asn Met Pro Gly Ser Glu Gly Leu Ala Ala  
580 585 590

Ala

<210> 24  
<211> 576  
<212> PRT  
<213> Caenorhabditis elegans

<400> 24

Met Ala Lys Pro Val Asn Val Asn Gln Ser Lys Trp Thr Val Pro Val  
1 5 10 15

Leu Leu Lys Glu Cys Glu Ile Tyr Cys Pro Ser Thr Cys Val Ala Phe  
20 25 30

Gly Pro Ile Leu Ser Asp Asn Asp Ser Lys Leu Ile Ile Ala His Gly  
35 40 45

Gly His Arg Gly Val Asn Met Lys Leu Lys Val Phe Gln Gln Leu Glu  
50 55 60

Gln Leu Ser Glu Ser Ser Leu Ala Asp Met Pro Thr Ala Leu Val His  
65 70 75 80

Phe Ile Asn Asp Leu Ser Ser Ile Pro Ser Ile Ala Val Ala Ala Gly  
85 90 95

Pro Ser Leu Leu Ile Tyr Lys Asn Leu Lys Pro Phe Tyr Lys Phe Thr  
100 105 110

Val Pro Ser Ser Ala Ile Asn Pro Thr Glu Ser Glu Ala Trp Lys Ala  
115 120 125

Val Val Asn Lys Lys Ile Asn Gly Asp Thr Leu Leu Thr Val Leu Lys  
130 135 140

Arg Leu Glu Asp Asp Val Ala Phe Ser Lys Leu Thr Pro Ile Ser Gln  
145 150 155 160

Thr Tyr Leu Arg Ala Asp Lys Glu Thr Gln Val Val Leu Val Glu His  
165 170 175

Tyr Gly Thr Lys Ile Ala Asn Ser Ala Thr Ile Thr Cys Ile Ala Lys  
180 185 190

Leu Thr Lys Ser Thr Ala Glu Pro Leu Asp Ile Leu Val Ile Gly Thr  
195 200 205

Glu His Cys Glu Ile Phe Leu Ile Asp Ser Gln Ala Phe Thr Ile Leu  
210 215 220

Glu Thr Ile Lys Ile Gly Ser Val Pro Val Asn Ile Cys Ala Tyr Gly  
225 230 235 240

Thr Tyr Asp Val Asp Tyr Arg Leu Phe Val Gln Thr Arg Ala Ser Leu  
245 250 255

Ile Phe Cys Met Lys Arg Gly Glu Ala Asp Tyr Gln Pro Ile Val Ile  
260 265 270

Ser Gln Ser Met Ile Thr Ser Met Val Leu Val Asn Lys Met Ile Val  
275 280 285

Tyr Thr Thr Val Glu Asn Leu Ile His Phe Ala Ser Phe Arg Gly Lys  
290 295 300

Lys Met Asn Thr Val Lys Cys Pro Ser Lys Ile Lys Met Leu Glu Pro  
305 310 315 320

Phe Ile Tyr Pro Leu Lys Gln Leu Ala Ala Val Ile Ala Val Phe Asp  
325 330 335

Lys Glu Ile Arg Met Tyr Asn Glu His Tyr Leu Leu Asp Thr Val Gln  
340 345 350

Tyr Glu Lys Pro Leu Ala Trp Val Lys Tyr Gly Cys Tyr Gly Arg Glu  
355 360 365

Asp Ser Thr Leu Val Val Ala Phe Lys Asp Gly Ser Ile Ala Ile Gln  
370 375 380

Ile Phe Arg Arg Lys Ala Asn Phe Asp Thr Lys Leu Asp Tyr Asn Gln  
385 390 395 400

Val Pro Gln Ala His Ala Leu Lys Leu Gln Ile Pro Lys Lys Thr Lys  
405 410 415

Val Phe Ile Asp Leu Thr Gln Arg Glu Val Gln Leu Gly Asn Arg Ile  
420 425 430

His Lys Val Tyr Gln Lys Asn Leu Phe Asp Val Lys Tyr Arg Leu Ala  
435 440 445

Ala Ser Tyr Leu Glu Leu Thr Ser Ser Ala Ser Ala Thr Val Ser Thr  
450 455 460

Thr Thr Val Leu Pro Val Glu Ile Ser Val Asp Ile His Gly Phe Gly  
465 470 475 480

Pro Thr Phe Arg Met Thr Ile His Leu Leu Ser Ser Ser Lys Gln Asn  
485 490 495

Leu Tyr Asp Met His Leu Ser Ile Ile Ser Asp Pro Glu Leu Tyr Asp  
500 505 510

Phe Asp Thr Pro Leu Ile Pro Val His Leu Leu Ala Ser Gly Gln Ser  
515 520 525

Tyr Ser Phe Thr Thr Leu Leu Tyr Cys Lys Asp Pro Glu Lys Ala Ala  
530 535 540

Asn Cys Asp Val Arg Ala Leu Leu Val His Ala Lys Arg Ala Thr Pro  
545 550 555 560

Ile Val Thr Ala Val Ile Lys Met Pro Phe Ser Glu Phe Pro Leu Asp  
565 570 575

<210> 25  
<211> 5  
<212> PRT  
<213> ARTIFICIAL SEQUENCE

<220>  
<223> synthetic

<400> 25

Lys Lys Ile Ala Val  
1 5

<210> 26  
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<220>  
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<400> 26

Lys Asn Ile Ala Val  
1 5

<210> 27  
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<220>
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<400> 27
aaaaagattg ccgtt 15

<210> 28
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<212> DNA
<213> ARTIFICIAL SEQUENCE

<220>
<223> synthetic

<400> 28
aaaaatattg ccgtt 15

<210> 29
<211> 5
<212> PRT
<213> ARTIFICIAL SEQUENCE

<220>
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<220>
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<222> (1)..(1)
<223> Xaa is Lys or Arg

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa is Lys or Arg

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<222> (3)..(3)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (4)..(4)
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<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa is any amino acid

<400> 29

Xaa Xaa Xaa Xaa Xaa
1 5

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<210> 30  
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<213> ARTIFICIAL SEQUENCE

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<220>  
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<223> Xaa is Lys or Arg

<220>  
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<222> (2)..(2)  
<223> Xaa is Lys or Arg

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> Xaa is any amino acid

<220>  
<221> MISC\_FEATURE  
<222> (5)..(5)  
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<400> 30

Xaa Xaa Xaa Ala Xaa  
1 5

<210> 31  
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<220>  
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<400> 31

Lys Lys Ile Ala Val  
1 5

<210> 32  
<211> 5  
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<223> synthetic

<400> 32

Lys Asn Ile Ala Val  
1 5

<210> 33  
<211> 686  
<212> PRT  
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<400> 33

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Glu Leu Arg Gln Arg Asp Ala Leu Ile Asp Glu Leu Glu Leu Glu Leu  
20 25 30

Asp Gln Lys Asp Glu Leu Ile Gln Lys Leu Gln Asn Glu Leu Asp Lys  
35 40 45

Tyr Arg Ser Val Ile Arg Pro Ala Thr Gln Gln Ala Gln Lys Gln Ser  
50 55 60

Ala Ser Thr Leu Gln Gly Glu Pro Arg Thr Lys Arg Gln Ala Ile Ser  
65 70 75 80

Ala Glu Pro Thr Ala Phe Asp Ile Gln Asp Leu Ser His Val Thr Leu  
85 90 95

Pro Phe Tyr Pro Lys Ser Pro Gln Ser Lys Asp Leu Ile Lys Glu Ala  
100 105 110

Ile Leu Asp Asn Asp Phe Met Lys Asn Leu Glu Leu Ser Gln Ile Gln  
115 120 125

Glu Ile Val Asp Cys Met Tyr Pro Val Glu Tyr Gly Lys Asp Ser Cys  
130 135 140

Ile Ile Lys Glu Gly Asp Val Gly Ser Leu Val Tyr Val Met Glu Asp  
145 150 155 160

Gly Lys Val Glu Val Thr Lys Glu Gly Val Lys Leu Cys Thr Met Gly  
165 170 175

Pro Gly Lys Val Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg  
180 185 190

Thr Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp  
195 200 205

Arg Gln Cys Phe Gln Thr Ile Met Met Arg Thr Gly Leu Ile Lys His  
210 215 220

Thr Glu Tyr Met Glu Phe Leu Lys Ser Val Pro Thr Phe Gln Ser Leu  
225 230 235 240

Pro Glu Glu Ile Leu Ser Lys Leu Ala Asp Val Leu Glu Glu Thr His  
245 250 255

Tyr Glu Asn Gly Glu Tyr Ile Ile Arg Gln Gly Ala Arg Gly Asp Thr  
260 265 270

Phe Phe Ile Ile Ser Lys Gly Thr Val Asn Val Thr Arg Glu Asp Ser  
275 280 285

Pro Ser Glu Asp Pro Val Phe Leu Arg Thr Leu Gly Lys Gly Asp Trp  
290 295 300

Phe Gly Glu Lys Ala Leu Gln Gly Glu Asp Val Arg Thr Ala Asn Val  
305 310 315 320

Ile Ala Ala Glu Ala Val Thr Cys Leu Val Ile Asp Arg Asp Ser Phe  
325 330 335

Lys His Leu Ile Gly Gly Leu Asp Asp Val Ser Asn Lys Ala Tyr Glu  
340 345 350

Asp Ala Glu Ala Lys Ala Lys Tyr Glu Ala Glu Ala Ala Phe Phe Ala  
355 360 365

Asn Leu Lys Leu Ser Asp Phe Asn Ile Ile Asp Thr Leu Gly Val Gly  
370 375 380

Gly Phe Gly Arg Val Glu Leu Val Gln Leu Lys Ser Glu Glu Ser Lys  
385 390 395 400

Thr Phe Ala Met Lys Ile Leu Lys Lys Arg His Ile Val Asp Thr Arg  
405 410 415

Gln Gln Glu His Ile Arg Ser Glu Lys Gln Ile Met Gln Gly Ala His  
420 425 430

Ser Asp Phe Ile Val Arg Leu Tyr Arg Thr Phe Lys Asp Ser Lys Tyr  
435 440 445

Leu Tyr Met Leu Met Glu Ala Cys Leu Gly Gly Glu Leu Trp Thr Ile  
450 455 460

Leu Arg Asp Arg Gly Ser Phe Glu Asp Ser Thr Thr Arg Phe Tyr Thr  
465 470 475 480

Ala Cys Val Val Glu Ala Phe Ala Tyr Leu His Ser Lys Gly Ile Ile  
485 490 495

Tyr Arg Asp Leu Lys Pro Glu Asn Leu Ile Leu Asp His Arg Gly Tyr  
500 505 510

Ala Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Ile Gly Phe Gly Lys  
515 520 525

Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ala Pro Glu Ile  
530 535 540

Ile Leu Asn Lys Gly His Asp Ile Ser Ala Asp Tyr Trp Ser Leu Gly  
545 550 555 560

Ile Leu Met Tyr Glu Leu Leu Thr Gly Ser Pro Pro Phe Ser Gly Pro  
565 570 575

Asp Pro Met Lys Thr Tyr Asn Ile Ile Leu Arg Gly Ile Asp Met Ile  
580 585 590

Glu Phe Pro Lys Lys Ile Ala Lys Asn Ala Ala Asn Leu Ile Lys Lys  
595 600 605

Leu Cys Arg Asp Asn Pro Ser Glu Arg Leu Gly Asn Leu Lys Asn Gly  
610 615 620

Val Lys Asp Ile Gln Lys His Lys Trp Phe Glu Gly Phe Asn Trp Glu  
625 630 635 640

Gly Leu Arg Lys Gly Thr Leu Thr Pro Pro Ile Ile Pro Ser Val Ala  
645 650 655

Ser Pro Thr Asp Thr Ser Asn Phe Asp Ser Phe Pro Glu Asp Asn Asp  
660 665 670

Glu Pro Pro Pro Asp Asp Asn Ser Gly Trp Asp Ile Asp Phe  
675 680 685

<210> 34  
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<212> PRT  
<213> Caenorhabditis elegans

<400> 34

Met Lys Gln Gln Pro Pro Arg Ile Tyr Val Gln Val Gly Thr Arg Thr  
1 5 10 15

Phe Glu Ala His Glu Leu Gln Lys Leu Ile Pro Gln Leu Glu Glu Ala  
20 25 30

Ile Ser Arg Lys Asp Ala Gln Leu Arg Gln Gln Gln Thr Ile Val Glu  
35 40 45

Gly His Ile Lys Arg Ile Ser Glu Leu Glu Gly Glu Val Thr Thr Leu  
50 55 60

Gln Arg Glu Cys Asp Lys Leu Arg Ser Val Leu Glu Gln Lys Ala Gln  
65 70 75 80

Ser Ala Ala Ser Pro Gly Gly Gln Pro Pro Ser Pro Ser Pro Arg Thr  
85 90 95

Asp Gln Leu Gly Asn Asp Leu Gln Gln Lys Ala Val Leu Pro Ala Asp  
100 105 110

Gly Val Gln Arg Ala Lys Lys Ile Ala Val Ser Ala Glu Pro Thr Asn  
115 120 125

Phe Glu Asn Lys Pro Ala Thr Leu Gln His Tyr Asn Lys Thr Val Gly  
130 135 140

Ala Lys Gln Met Ile Arg Asp Ala Val Gln Lys Asn Asp Phe Leu Lys  
145 150 155 160

Gln Leu Ala Lys Glu Gln Ile Ile Glu Leu Val Asn Cys Met Tyr Glu  
165 170 175

Met Arg Ala Arg Ala Gly Gln Trp Val Ile Gln Glu Gly Glu Pro Gly  
180 185 190

Asp Arg Leu Phe Val Val Ala Glu Gly Glu Leu Gln Val Ser Arg Glu  
195 200 205

Gly Ala Leu Leu Gly Lys Met Arg Ala Gly Thr Val Met Gly Glu Leu  
210 215 220

Ala Ile Leu Tyr Asn Cys Thr Arg Thr Ala Ser Val Gln Ala Leu Thr  
225 230 235 240

Asp Val Gln Leu Trp Val Leu Asp Arg Ser Val Phe Gln Met Ile Thr  
245 250 255

Gln Arg Leu Gly Met Glu Arg His Ser Gln Leu Met Asn Phe Leu Thr  
260 265 270

Lys Val Ser Ile Phe Gln Asn Leu Ser Glu Asp Arg Ile Ser Lys Met  
275 280 285

Ala Asp Val Met Asp Gln Asp Tyr Tyr Asp Gly Gly His Tyr Ile Ile  
290 295 300

Arg Gln Gly Glu Lys Gly Asp Ala Phe Phe Val Ile Asn Ser Gly Gln  
305 310 315 320

Val Lys Val Thr Gln Gln Ile Glu Gly Glu Thr Glu Pro Arg Glu Ile  
325 330 335

Arg Val Leu Asn Gln Gly Asp Phe Phe Gly Glu Arg Ala Leu Leu Gly  
340 345 350

Glu Glu Val Arg Thr Ala Asn Ile Ile Ala Gln Ala Pro Gly Val Glu  
355 360 365

Val Leu Thr Leu Asp Arg Glu Ser Phe Gly Lys Leu Ile Gly Asp Leu  
370 375 380

Glu Ser Leu Lys Lys Asp Tyr Gly Asp Lys Glu Arg Leu Ala Gln Val  
385 390 395 400

Val Arg Glu Pro Pro Ser Pro Val Lys Ile Val Asp Asp Phe Arg Glu  
405 410 415

Glu Phe Ala Gln Val Thr Leu Lys Asn Val Lys Arg Leu Ala Thr Leu  
420 425 430

Gly Val Gly Gly Phe Gly Arg Val Glu Leu Val Cys Val Asn Gly Asp  
435 440 445

Lys Ala Lys Thr Phe Ala Leu Lys Ala Leu Lys Lys His Ile Val  
450 455 460

Asp Thr Arg Gln Gln Glu His Ile Phe Ala Glu Arg Asn Ile Met Met  
465 470 475 480

Glu Thr Ser Thr Asp Trp Ile Val Lys Leu Tyr Lys Thr Phe Arg Asp  
485 490 495

Gln Lys Phe Val Tyr Met Leu Leu Glu Val Cys Leu Gly Gly Glu Leu  
500 505 510

Trp Thr Thr Leu Arg Asp Arg Gly His Phe Asp Asp Tyr Thr Ala Arg  
515 520 525

Phe Tyr Val Ala Cys Val Leu Glu Gly Leu Glu Tyr Leu His Arg Lys  
530 535 540

Asn Ile Val Tyr Arg Asp Leu Lys Pro Glu Asn Cys Leu Leu Ala Asn  
545 550 555 560

Thr Gly Tyr Leu Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Leu Ala  
565 570 575

Ser Gly Arg Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ser  
580 585 590

Pro Glu Ile Ile Leu Asn Lys Gly His Asp Gln Ala Ala Asp Tyr Trp  
595 600 605

Ala Leu Gly Ile Tyr Ile Cys Glu Leu Met Leu Gly Arg Pro Pro Phe  
610 615 620

Gln Ala Ser Asp Pro Met Lys Thr Tyr Thr Leu Ile Leu Lys Gly Val  
625 630 635 640

Asp Ala Leu Glu Ile Pro Asn Arg Arg Ile Gly Lys Thr Ala Thr Ala  
645 650 655

Leu Val Lys Lys Leu Cys Arg Asp Asn Pro Gly Glu Arg Leu Gly Ser  
660 665 670

Gly Ser Gly Gly Val Asn Asp Ile Arg Lys His Arg Trp Phe Met Gly  
675 680 685

Phe Asp Trp Glu Gly Leu Arg Ser Arg Thr Leu Lys Pro Pro Ile Leu  
690 695 700

Pro Lys Val Ser Asn Pro Ala Asp Val Thr Asn Phe Asp Asn Tyr Pro  
705 710 715 720

Pro Asp Asn Asp Val Pro Pro Asp Glu Phe Ser Gly Trp Asp Glu Gly  
725 730 735

Phe